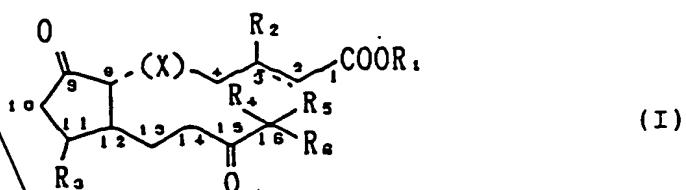


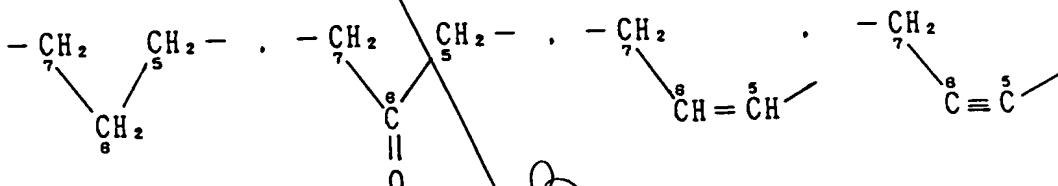
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What is claimed is :

1. Prostaglandins E represented by a general formula:



(in which X represents:



R<sub>1</sub> represents : hydrogen atom, physiologically acceptable salts, physiologically acceptable protective group, C<sub>1</sub>-C<sub>4</sub> alkyl, benzyl, hydroxyalkyl;

R<sub>2</sub> represents : hydrogen atom or a methyl group;

R<sub>3</sub> represents : a hydroxyl, methyl, or hydroxymethyl group;

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$R_4$  and  $R_5$ , each represents : hydrogen atom, methyl, hydroxyl group, or halogen atom (provided that  $R_4$  and  $R_5$  may be identical with or different from each other); and  $R_6$  represents :  $C_1-C_9$  alkyl group which may have a branch or a double bond, or  $C_1-C_9$  alkyl group having an alkoxy substituent group,  
in which  $C_2-C_3$  bond may be a double bond; except that all  $R_1$ ,  $R_2$ ,  $R_4$  and  $R_5$  are hydrogen atom,  $R_6$  is n-butyl, and  $R_3$  is hydroxyl.)

2. Prostaglandins E as described in claim 1,  
wherein  $R_4$  and/or  $R_5$  is a halogen.

3. Prostaglandins E as described in claim 1,  
wherein  $R_4$  and/or  $R_5$  is a fluorine atom.

4. Prostaglandins E as described in claim 1,  
wherein  $R_4$  and/or  $R_5$  is a methyl group.

5. Prostaglandins E as described in claim 1,  
wherein  $R_3$  is a methyl group.

6. Prostaglandins E as described in claim 1,  
having a methyl group on 19 position thereof.

7. Prostaglandins E as described in claim 1,  
wherein  $R_6$  is a hexyl group.

8. Prostaglandins E as described in claim 1,  
wherein  $R_6$  is an isopentyl group.

9. Prostaglandins E as described in claim 1,  
wherein  $R_6$  is a pentyl-2S-group.

10. Prostaglandins E as described in claim 1,  
of which carboxyl group on the terminal position of

~~a-chain is esterified with alkyl group.~~

11. Prostaglandins E as described in claim 1,  
which is 13,14-dihydro-15-keto-PGE having methyl group or  
fluorine atom on 16-position or alkyl ester thereof.

12. Prostaglandins E as described in claim 1  
which is 13,14-dihydro-15-keto-16R,S-methyl-PGE<sub>2</sub> or alkyl  
ester thereof.

13. Prostaglandins E as described in claim 1  
being 13,14-dihydro-6,15-diketo-16R,S-methyl-  
PGE<sub>1</sub> or alkylester thereof.

14. Prostaglandins E as described in claim 1  
being 13,14-dihydro-15-keto-16R,S-fluoro-PGE<sub>2</sub> or alkyl ester  
thereof.

15. Prostaglandins E as described in claim 1  
being 13,14-dihydro-6,15-diketo-16R,S-fluoro-PGE<sub>1</sub> or alkyl  
ester thereof.

16. Prostaglandins E as described in claim 1  
being 13,14-dihydro-15-keto-19-methyl-PGE<sub>2</sub> or alkyl ester  
thereof.

17. Prostaglandins E as described in claim 1  
being 13,14-dihydro-6,15-diketo-19-methyl-PGE<sub>1</sub> or alkyl  
ester thereof.

18. Prostaglandins E as described in claim 1  
being 13,14-dihydro-15-keto-20-ethyl-PGE<sub>2</sub> or alkyl ester  
thereof.

19. Prostaglandins E as described in claim 1  
being 13,14-dihydro-15-keto-11-dehydroxy-11R-methyl-PGE<sub>2</sub> or alkyl ester thereof.

20. Prostaglandins E as described in claim 1  
being 13,14-dihydro-6,15-diketo-11-dehydroxy-11R-methyl PGE<sub>1</sub> or alkyl ester thereof.

21. Prostaglandins E as described in claim 1  
being 13,14-dihydro-15-keto-16,16-difluoro-PGE<sub>2</sub> or alkyl ester thereof.

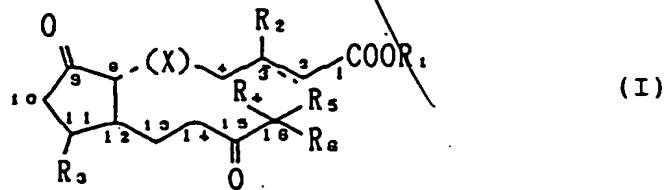
22. Prostaglandins E as described in claim 1  
being 13,14-dihydro-15-keto-20-methyl-PGE<sub>1</sub> or alkyl ester thereof.

23. Prostaglandins E as described in claim 1  
being 13,14-dihydro-15-keto-Δ<sup>2</sup>-PGE<sub>1</sub> or alkyl ester thereof.

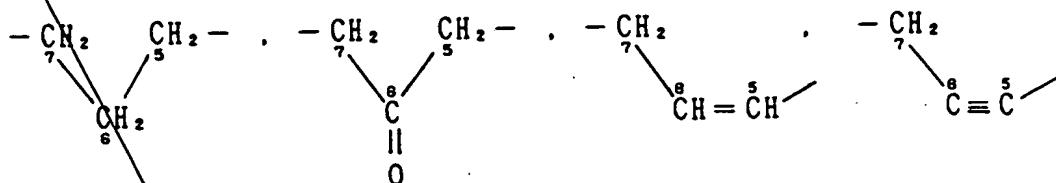
24. Prostaglandins E as described in claim 1  
being 13,14-dihydro-15-keto-16R,S-fluoro-20-methyl-PGE<sub>2</sub> or alkyl ester thereof.

25. Prostaglandins E as described in claim 1  
being 13,14-dihydro-15-keto-5,6-dehydro-20-methoxy-PGE<sub>2</sub> or alkyl ester thereof.

26. An antiulcer composition composing  
prostaglandins E expressed by a general formula:



(in which X represents:



- R<sub>1</sub> represents : hydrogen atom, physiologically acceptable salts, physiologically acceptable protective group, C<sub>1</sub>-C<sub>4</sub> alkyl, benzyl, hydroxyalkyl;
- R<sub>2</sub> represents : hydrogen atom or a methyl group;
- R<sub>3</sub> represents : a hydroxyl, methyl, or hydroxymethyl group;
- R<sub>4</sub> and R<sub>5</sub>, each represents : hydrogen atom, or a methyl, hydroxyl group, or halogen atom (provided that R<sub>4</sub> and R<sub>5</sub> may be identical with or different from each other); and
- R<sub>6</sub> represents : C<sub>1</sub>-C<sub>9</sub> alkyl group which may have a branch or a double bond, or C<sub>1</sub>-C<sub>9</sub> alkyl group having an alkoxy substituent group,  
in which C<sub>2</sub>-C<sub>3</sub> bond may be a double bond; except that all R<sub>1</sub>, R<sub>2</sub>, R<sub>4</sub> and R<sub>5</sub> are hydrogen atom, R<sub>6</sub> is n-butyl, and R<sub>2</sub> is hydroxyl.)

27. An antiulcer composition as described in claim 26 wherein R<sub>4</sub> and/or R<sub>5</sub> is a halogen.

28. An antiulcer composition as described in claim 26 wherein R<sub>4</sub> and/or R<sub>5</sub> is a fluorine atom.

29. An antiulcer composition as described in claim 26 wherein R<sub>4</sub> and/or R<sub>5</sub> is a methyl group.

30. An antiulcer composition as described in claim 26 wherein R<sub>3</sub> is a methyl group.

31. An antiulcer composition as described in claim 26 comprising prostaglandin E of claim 26 having a methyl group on 19-position.

32. An antiulcer composition as described in claim 26 wherein R<sub>6</sub> is a hexyl group.

33. An antiulcer composition as described in claim 26 wherein R<sub>6</sub> is an isopentyl group.

34. An antiulcer composition as described in claim 20 wherein R<sub>6</sub> is a pentyl-2S-group.

35. An antiulcer composition as described in claim 26 wherein the prostaglandines E of which carboxyl group on the terminal position of α-chain is esterified with alkyl group are contained.

36. An antiulcer composition as described in claim 26 wherein the prostaglandins E are 13,14-dihydro-15-keto-PGEs having a methyl group or fluorine atom on 16-position or alkyl ester thereof.

37. An antiulcer composition as described in claim 26 wherein the prostaglandin E is 13,14-dihydro-15-keto-16R,S-methyl-PGE<sub>2</sub> alkyl ester.

38. An antiulcer composition as described in  
claim 26 wherein the prostaglandin E is 13,14-dihydro-6,15-diketo-16R,S-methyl-PGE<sub>1</sub>-alkyl ester.

39. An antiulcer composition as described in  
claim 26 wherein the prostaglandin E is 13,14-dihydro-15-keto-16R,S-fluoro-PGE<sub>2</sub> or alkyl ester thereof.

40. An antiulcer composition as described in  
claim 26 wherein the prostaglandin E is 13,14-dihydro-6,15-diketo-16R,S-fluoro-PGE<sub>1</sub> or alkyl ester thereof.

41. An antiulcer composition as described in  
claim 26 wherein the prostaglandin E is 13,14-dihydro-15-keto-19-methyl-PGE<sub>2</sub> or alkyl ester thereof.

42. An antiulcer composition as described in  
claim 26 wherein the prostaglandin E is  
13,14-dihydro-6,15-diketo-19-methyl-PGE<sub>2</sub> or alkyl ester thereof.

43. An antiulcer composition as described in  
claim 26 wherein the prostaglandin E is  
13,14-dihydro-15-keto-20-ethyl-PGE<sub>2</sub> or alkyl ester thereof.

44. An antiulcer composition as described in  
claim 26 wherein the prostaglandin E is  
13,14-dihydro-15-keto-11-dehydroxy-11R-methyl-PGE<sub>2</sub> or alkyl ester thereof.

45. An antiulcer composition as described in  
claim 26 wherein the prostaglandin E is 13,14-dihydro-6,

15-diketo-11-dehydroxy-11R-methyl-PGE<sub>1</sub> or alkyl ester thereof.

46. An antiulcer composition as described in claim 26 wherein the prostaglandin E is 13,14-dihydro-15-keto-16,16-difluoro-PGE<sub>2</sub> or alkyl ester thereof.

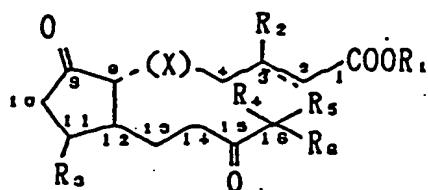
47. An antiulcer composition as described in claim 26 wherein the prostaglandin E is 13,14-dihydro-15-keto-20-methyl-PGE<sub>1</sub> or alkyl ester thereof.

48. An antiulcer composition as described in claim 26 wherein the prostaglandin E is 13,14-dihydro-15-keto- $\Delta^2$ -PGE<sub>1</sub> or alkyl ester thereof.

49. An antiulcer composition as described in claim 26 wherein the prostaglandin E is 13,14-dihydro-15-keto-16R,S-fluoro-20-methyl-PGE<sub>2</sub> or alkyl ester thereof.

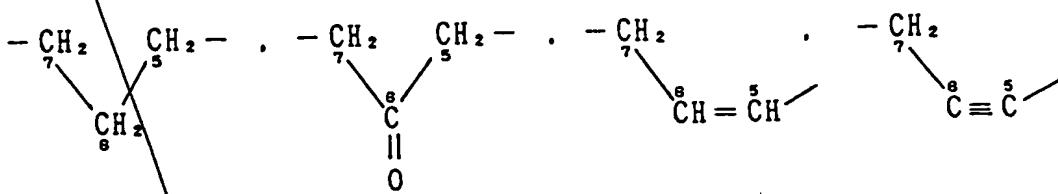
50. An antiulcer composition as described in claim 26 wherein the prostaglandin E is 13,14-dihydro-15-keto-5,6-dehydro-20-methoxy-PGE<sub>2</sub> or alkyl ester thereof.

51. A treatment of ulcer by administering prostaglandins E to a patient, wherein the prostaglandins E are represented by a formula:



(I)

(in which X represents:



- R<sub>1</sub> represents : hydrogen atom, physiologically acceptable salts, physiologically acceptable protective group, C<sub>1</sub>-C<sub>4</sub> alkyl, benzyl, hydroxyalkyl;
- R<sub>2</sub> represents : hydrogen atom or a methyl group;
- R<sub>3</sub> represents : a hydroxyl, methyl, or hydroxymethyl group;
- R<sub>4</sub> and R<sub>5</sub>, each represents : hydrogen atom, or a methyl, hydroxyl group, or halogen atom (provided that R<sub>4</sub> and R<sub>5</sub> may be identical with or different from each other); and
- R<sub>6</sub> represents : C<sub>1</sub>-C<sub>9</sub> alkyl group which may have a branch or a double bond, or C<sub>1</sub>-C<sub>9</sub> alkyl group having an alkoxy substituent group,  
in which C<sub>2</sub>-C<sub>3</sub> bond may be a double bond; except that all R<sub>1</sub>, R<sub>2</sub>, R<sub>4</sub> and R<sub>5</sub> are hydrogen atom, R<sub>6</sub> is n-butyl, and R<sub>2</sub> is hydroxyl.)

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